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EXAMINER
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LE, MIRANDA

ART UNIT	PAPER NUMBER
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2159

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/872,235	<b>Applicant(s)</b> BAFFIER ET AL.	
	<b>Examiner</b> MIRANDA LE	<b>Art Unit</b> 2159	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 March 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3,5,6,8,10-38,40,41,43 and 45-82 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,6,8,10-38,40,41,43 and 45-82 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

Claims 1-3, 5, 6, 8, 10-38, 40, 41, 43, and 45-82 are pending in this application. This action is made Final.

The rejections of claims 1-3, 5-6, 8, 10-35, 71-81 under 35USC 101 have been withdrawn in view of the amendment.

### ***Information Disclosure Statement***

The information disclosure statements filed 05/07/09, 02/27/09 fail to comply with 37 CFR 1.98(a)(1), which requires the following: (1) a list of all patents, publications, applications, or other information submitted for consideration by the Office; (2) U.S. patents and U.S. patent application publications listed in a section separately from citations of other documents; (3) the application number of the application in which the information disclosure statement is being submitted on each page of the list; (4) a column that provides a blank space next to each document to be considered, for the examiner's initials; and (5) a heading that clearly indicates that the list is an information disclosure statement.

The information disclosure statement has been placed in the application file as a remarks document; and the references referred to therein will be considered and entered into the Non-Patent Documents as seen in the attached form PTO-892.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 1-3, 5, 6, 8, 10-15, 17-22, 25, 27, 31-33, 36-38, 40, 41, 43, 45-50, 52-57, 60, 62, 66-68, 71-73, 76-78, 80-82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nolan et al. (US Patent No. 6,640,278), in view of Donovan et al. (US Patent No. 6,012,032), and Ng et al. (US Patent No. 6,374,256), and further in view of Laurent et al. (US Patent No. 7,222,176).**

**As to claims 1, 36,** Nolan teaches a computer-implemented method for provisioning database for users on a network, the method comprising the steps of:

a first party (*i.e. Storage servers 1300, 1301, and 1302, Fig. 3*) managing one or more database systems (*i.e. a plurality of storage devices 1330 through 1339, Fig. 3*);

receiving from a plurality of second parties (*i.e. a plurality of client servers 1310 through 1318, Fig. 3*), information for subscribing to database services (*i.e. routines for administering user, col. 23, lines 20-42; See Figs. 18*) supported by the one or more database systems managed by the first party (*i.e. Two primary tables support the exporting of storage to clients and the storage routing functionality of the storage server 102A. These tables are the export table 1407 and the virtual device configuration table 1410, col. 18, lines 23-27*), wherein the database services include services for storing and managing data provided by the second parties (*i.e. Storage transactions are received over one of the connection options 130. Storage transactions include read and write requests as well as status inquiries. The requests may be block oriented, col. 8, lines 35-41*); and

wherein the information is gathered during a registration process during which said second parties identify database resources (*i.e. The unique device identifiers are used to support the configuration logic based on tables in a configuration database managed by the storage server, and controlled by local*

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*configurable logic in the storage server, col. 17, lines 29-35) for which the second parties are willing to pay (See Fig. 22);*

*providing, to database applications (i.e. FIGS. 30 and 31 illustrate processes executed in the storage server to manage data access requests issued by client processors while a hot copy process is being executed. The data access requests may have one of a plurality of types, including read requests and write requests, and variations of the same. Other requests include requests supporting management of the data channel, and the like. In FIG. 30, one process for handling a write request is illustrated, col. 30, lines 18-26) owned and controlled by the second parties, access to the database services to which the second parties are subscribed (i.e. A plurality of communication interfaces 160-165 are provided on the system 151. In this example, the interface 160 is adapted to execute protocol X between a client and the storage management system 151; interface 161 is adapted to execute protocol Y between a client and the storage management system 151; interface 162 is adapted to execute protocol Z between a storage device and the storage management system 151; interface 163 is adapted to execute protocol A between a storage device and the storage management system 151; interface 164 is adapted to execute protocol B between a storage device and storage management system 151; and interface 165 is adapted to execute protocol C between the storage manager system 151 and another storage management system on the network, col. 10, lines 8-21);*

*wherein the database applications, owned and controlled by the second parties, interact with the database systems managed by the first party by*

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sending, to the database system, database commands that conform to the database language (*i.e. Thus, the client servers can be configured to communicate using standard protocols, such as FCP using SCSI commands for storage transactions. In the embodiment utilizing SCSI commands, the emulation involves responding to an inquiry command according to the SCSI protocol with device identifiers and device capability information expected by, or compatible with, the initiating server. Also, a read capacity command and a mode page data command in the SCSI protocol are handled by the emulation resources in a manner that allows the client servers using the storage to rely on standard configuration information for physical storage devices, while the storage server spoofs the client server by emulating the physical storage devices at the interface with the client server, and maps actual storage transactions to virtual devices, col. 9, lines 33-56*) supported by the database system (*i.e. The unique device identifiers are used to support the configuration logic based on tables in a configuration database managed by the storage server, and controlled by local configurable logic in the storage server, col. 17, lines 29-35*);

whereby the second parties use the database applications under their ownership and control, while the database applications send the database commands to the database systems managed by the first party, thereby obviating the need for the second parties to manage the database systems used by their database applications (*i.e. A plurality of communication interfaces 160-165 are provided on the system 151. In this example, the interface 160 is adapted to execute protocol X between a client and the storage management*

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*system 151; interface 161 is adapted to execute protocol Y between a client and the storage management system 151; interface 162 is adapted to execute protocol Z between a storage device and the storage management system 151; interface 163 is adapted to execute protocol A between a storage device and the storage management system 151; interface 164 is adapted to execute protocol B between a storage device and storage management system 151; and interface 165 is adapted to execute protocol C between the storage manager system 151 and another storage management system on the network, col. 10, lines 8-21);*

*wherein execution of the database commands allows the second parties to manipulate data objects stored within at least one of the one or more database system (i.e. FIGS. 30 and 31 illustrate processes executed in the storage server to manage data access requests issued by client processors while a hot copy process is being executed. The data access requests may have one of a plurality of types, including read requests and write requests, and variations of the same. Other requests include requests supporting management of the data channel, and the like. In FIG. 30, one process for handling a write request is illustrated, col. 30, lines 18-26);*

*delivering to one of said second parties, one or more messages which causes generation of user interfaces that allows the second party to subscribe to said database services provided by said first party (i.e. The user launches a host manager using button 1405. This section describes a Java based user interface (UI) for defining hosts (servers) to storage server. The management software opens a window, such as the window 1450 shown in FIG. 19, that presents a*



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*table 1451 with entries that contain a host name in column 1452, a port number in column 1453, an initiator ID in column 1454 and a description in column 1455 for each host available for configuration and use. Other fields include a network interface card identifier in column 1456, and a unique host identifier in column 1457. The unique host identifier in a preferred example is the World Wide Number value for a fibre channel host, col. 23, lines 43-56); and*

delivering, to a user associated with said one of said second parties, one or more message which cause generation of user interfaces that allow the user to access a database for a database service to which said one of said second parties has subscribed (*i.e. Using button 1407 of FIG. 18, the user launches a storage manager routine which displays an image such as that shown in FIG. 22. The image of FIG. 22 includes a window 1500 that includes a hierarchical tree display construct 1501 for displaying storage elements, col. 24, lines 35-41).*

wherein the steps of receiving, providing, and delivering are performed by one or more computing devices (*i.e. Using button 1407 of FIG. 18, the user launches a storage manager routine which displays an image such as that shown in FIG. 22. The image of FIG. 22 includes a window 1500 that includes a hierarchical tree display construct 1501 for displaying storage elements, col. 24, lines 35-41).*

Nolan implicitly teaches:

willing to pay (See Fig. 22);

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database commands that conform to the database language (*i.e. Thus, the client servers can be configured to communicate using standard protocols, such as FCP using SCSI commands for storage transactions, col. 9, lines 33-56*).

whereby the second parties use the database applications under their ownership and control, while the database applications send the database commands to the database systems managed by the first party, thereby obviating the need for the second parties to manage the database systems used by their database applications , col. 10, lines 8-21.

Donovan specifically teaches willing to pay for the database services (*i.e. In one aspect of the invention, a system and method of accounting and billing for data storage on a plurality of data storage devices are provided. The data storage is mapped to a number of service levels, which are defined by varying data access and retrieval speeds. Therefore, instead of accounting and billing for data storage solely on the basis of the quantity of data stored, it is done on the basis of data access and retrieval speeds required by each data storage application and the number of days the data resides at each service level, Summary*).

It would have been obvious to one of ordinary skill of the art having the teaching of Nolan and Donovan at the time the invention was made to modify the system of Nolan to include the limitations as taught by Donovan. One of ordinary skill in the art would be motivated to make this combination in order to account and bill for data storage on a plurality of data storage devices are provided in view of Donovan (Summary), as doing so would give the added benefit of at least

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three service levels may be defined: the first service level providing a fast data access and retrieval speed, the second service level providing a medium data access and retrieval speed, and the third service level providing a slow data access and retrieval speed as taught by Donovan (Summary).

Nolan and Donovan do not clearly states “database commands that conform to the database language.”

Ng teaches database commands that conform to the database language *(i.e. object-oriented applications that access persistent objects send requests written in an object-oriented language over network 110 to object-database server 112. Object-server database 112 translates the object-oriented requests to the appropriate database instructions and sends the instructions over network 110 to database server 108 for further database processing, col. 5, lines 20-39).*

It would have been obvious to one of ordinary skill of the art having the teaching of Nolan, Donovan, Ng at the time the invention was made to modify the system of Nolan, Donovan to include the limitations as taught by Ng. One of ordinary skill in the art would be motivated to make this combination in order to access object-database server in view of Ng (col. 5, lines 20-39), as doing so would give the added benefit of providing the mapping tool maps each class in an object-oriented application to a table in a database as taught by Ng (Summary).

Nolan, Donovan, Ng do not clearly state “whereby the second parties use the database applications under their ownership and control, while the database applications send the database commands to the database systems managed by

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the first party, thereby obviating the need for the second parties to manage the database systems used by their database applications”.

However, Laurent teaches this limitation in Summary and col. 7, lines 9-26 (*i.e. The Virtual Path discussed in the overview section of the preferred embodiment is the Storage Domain's most atomic element. A Storage Domain contains one or many VPs that are grouped together according to the storage administrator's goals, often dictated by the enterprise organization. A Virtual Path is created when an association is made between a host and a volume. This association grants the host access to that volume according to configured access control parameters and describes the end-to-end path taken by I/O operations from/to the host and the Storage Domain Server. Practically, the association can be realized using any interface showing the virtualized data volume from the storage resource pool under control of a specific Storage Domain Server and the host. Those skilled in the art will recognize that a Graphical User Interface (GUI) will reveal how intuitive this association can be; however the interface can be implemented through any other mean available on the software platform, col. 7, lines 9-26*).

It would have been obvious to one of ordinary skill of the art having the teaching of Nolan, Donovan, Ng, Laurent at the time the invention was made to modify the system of Nolan, Donovan, Ng to include the limitations as taught by Laurent. One of ordinary skill in the art would be motivated to make this combination in order to provide a Storage Domain architecture in which a pool of storage devices is controlled by one or a plurality of Storage Domain Servers

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(SDS) in view of Laurent (Summary), as doing so would give the added benefit of having the Storage Domain Server logically mapped physical storage data on individual storage devices to logical storage data and presented to each host the storage resources allocated to that host by the storage administrator within the Storage Domain as taught by Laurent (Summary).

**As per claim 71**, Nolan teaches a computer-implemented method, comprising:

an internet database service provider (IDSP) party (*i.e. Storage servers 1300, 1301, and 1302, Fig. 3*) managing one or more database system (*i.e. a plurality of storage devices 1330 through 1339, Fig. 3*);

receiving from a plurality of second parties (*i.e. a plurality of client servers 1310 through 1318, Fig. 3*), information for subscribing to database services (*i.e. routines for administering user, col. 23, lines 20-42; See Figs. 18*) supported by the one or more database systems managed by the IDSP (*i.e. Two primary tables support the exporting of storage to clients and the storage routing functionality of the storage server 102A. These tables are the export table 1407 and the virtual device configuration table 1410, col. 18, lines 23-27*), wherein the database services include services for storing and managing data provided by the second parties (*i.e. the system according to the present invention is included as an intermediate device in a storage area network, between client processors, such as file servers, and storage systems used as storage resources in a storage domain for the clients. Storage transactions are received by the intermediate*

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*device, and managed according to the configuration of the storage domain defined by configuration logic in the intermediate device, col. 2, lines 42-56); and*

*wherein the information is gathered during a registration process during which said second parties identify database resources (i.e. The unique device identifiers are used to support the configuration logic based on tables in a configuration database managed by the storage server, and controlled by local configurable logic in the storage server, col. 17, lines 29-35) for which the second parties are willing to pay (See Fig. 22);*

*providing, to database applications (i.e. FIGS. 30 and 31 illustrate processes executed in the storage server to manage data access requests issued by client processors while a hot copy process is being executed. The data access requests may have one of a plurality of types, including read requests and write requests, and variations of the same. Other requests include requests supporting management of the data channel, and the like. In FIG. 30, one process for handling a write request is illustrated, col. 30, lines 18-26) owned and controlled by the second parties, access to the database services to which the second parties are subscribed (i.e. A plurality of communication interfaces 160-165 are provided on the system 151. In this example, the interface 160 is adapted to execute protocol X between a client and the storage management system 151; interface 161 is adapted to execute protocol Y between a client and the storage management system 151; interface 162 is adapted to execute protocol Z between a storage device and the storage management system 151; interface 163 is adapted to execute protocol A between a storage device and the*

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*storage management system 151; interface 164 is adapted to execute protocol B between a storage device and storage management system 151; and interface 165 is adapted to execute protocol C between the storage manager system 151 and another storage management system on the network, col. 10, lines 8-21);*

*wherein the database applications, owned and controlled by the second parties, interact with the database systems managed by the IDSP by sending, to the database system, database commands (i.e. Thus, the client servers can be configured to communicate using standard protocols, such as FCP using SCSI commands for storage transactions. In the embodiment utilizing SCSI commands, the emulation involves responding to an inquiry command according to the SCSI protocol with device identifiers and device capability information expected by, or compatible with, the initiating server. Also, a read capacity command and a mode page data command in the SCSI protocol are handled by the emulation resources in a manner that allows the client servers using the storage to rely on standard configuration information for physical storage devices, while the storage server spoofs the client server by emulating the physical storage devices at the interface with the client server, and maps actual storage transactions to virtual devices, col. 9, lines 33-56) that conform to the database language supported by the database system (i.e. The unique device identifiers are used to support the configuration logic based on tables in a configuration database managed by the storage server, and controlled by local configurable logic in the storage server, col. 17, lines 29-35);*

whereby the second parties use the database applications under their ownership and control, while the database applications send the database commands to the database systems managed by the first party, thereby obviating the need for the second parties to manage the database systems used by their database applications (*i.e. A plurality of communication interfaces 160-165 are provided on the system 151. In this example, the interface 160 is adapted to execute protocol X between a client and the storage management system 151; interface 161 is adapted to execute protocol Y between a client and the storage management system 151; interface 162 is adapted to execute protocol Z between a storage device and the storage management system 151; interface 163 is adapted to execute protocol A between a storage device and the storage management system 151; interface 164 is adapted to execute protocol B between a storage device and storage management system 151; and interface 165 is adapted to execute protocol C between the storage manager system 151 and another storage management system on the network, col. 10, lines 8-21*);

wherein execution of the database commands allows the second parties to manipulate data objects stored within at least one of the one or more database system (*i.e. FIGS. 30 and 31 illustrate processes executed in the storage server to manage data access requests issued by client processors while a hot copy process is being executed. The data access requests may have one of a plurality of types, including read requests and write requests, and variations of the same. Other requests include requests supporting management of the data channel,*



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*and the like. In FIG. 30, one process for handling a write request is illustrated, col. 30, lines 18-26);*

delivering to one of said second parties, one or more messages which cause generation of user interfaces that allows the second party to subscribe to said database services provided by the IDSP (*i.e. The user launches a host manager using button 1405. This section describes a Java based user interface (UI) for defining hosts (servers) to storage server. The management software opens a window, such as the window 1450 shown in FIG. 19, that presents a table 1451 with entries that contain a host name in column 1452, a port number in column 1453, an initiator ID in column 1454 and a description in column 1455 for each host available for configuration and use. Other fields include a network interface card identifier in column 1456, and a unique host identifier in column 1457. The unique host identifier in a preferred example is the World Wide Number value for a fibre channel host, col. 23, lines 43-56); and*

delivering, to a user associated with said one of said second parties, one or more messages which cause generation of user interfaces that allow the user to access a database for a database service to which said one of said second parties has subscribed (*i.e. Using button 1407 of FIG. 18, the user launches a storage manager routine which displays an image such as that shown in FIG. 22. The image of FIG. 22 includes a window 1500 that includes a hierarchical tree display construct 1501 for displaying storage elements, col. 24, lines 35-41).*

wherein the steps of receiving, providing, and delivering are performed by one or more computing devices (*i.e. Using button 1407 of FIG. 18, the user*

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*launches a storage manager routine which displays an image such as that shown in FIG. 22. The image of FIG. 22 includes a window 1500 that includes a hierarchical tree display construct 1501 for displaying storage elements, col. 24, lines 35-41).*

Nolan implicitly teaches:

willing to pay (See Fig. 22);

database commands that conform to the database language (*i.e. Thus, the client servers can be configured to communicate using standard protocols, such as FCP using SCSI commands for storage transactions, col. 9, lines 33-56).*

Nolan does not clearly states “willing to pay”, “database commands that conform to the database language”.

Donovan teaches willing to pay for the database services (*i.e. In one aspect of the invention, a system and method of accounting and billing for data storage on a plurality of data storage devices are provided. The data storage is mapped to a number of service levels, which are defined by varying data access and retrieval speeds. Therefore, instead of accounting and billing for data storage solely on the basis of the quantity of data stored, it is done on the basis of data access and retrieval speeds required by each data storage application and the number of days the data resides at each service level, Summary).*

It would have been obvious to one of ordinary skill of the art having the teaching of Nolan and Donovan at the time the invention was made to modify the system of Nolan to include the limitations as taught by Donovan. One of ordinary skill in the art would be motivated to make this combination in order to account

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and bill for data storage on a plurality of data storage devices are provided in view of Donovan (Summary), as doing so would give the added benefit of at least three service levels may be defined: the first service level providing a fast data access and retrieval speed, the second service level providing a medium data access and retrieval speed, and the third service level providing a slow data access and retrieval speed as taught by Donovan (Summary).

Nolan and Donovan do not clearly state “database commands that conform to the database language.”

Ng teaches database commands that conform to the database language *(i.e. object-oriented applications that access persistent objects send requests written in an object-oriented language over network 110 to object-database server 112. Object-server database 112 translates the object-oriented requests to the appropriate database instructions and sends the instructions over network 110 to database server 108 for further database processing, col. 5, lines 20-39).*

It would have been obvious to one of ordinary skill of the art having the teaching of Nolan, Donovan, Ng at the time the invention was made to modify the system of Nolan, Donovan to include the limitations as taught by Ng. One of ordinary skill in the art would be motivated to make this combination in order to access object-database server in view of Ng (col. 5, lines 20-39), as doing so would give the added benefit of providing the mapping tool maps each class in an object-oriented application to a table in a database as taught by Ng (Summary).

Nolan, Donovan, Ng do not clearly states “whereby the second parties use the database applications under their ownership and control, while the database applications send the database commands to the database systems managed by the first party, thereby obviating the need for the second parties to manage the database systems used by their database applications”.

However, Laurent teaches this limitation in Summary and col. 7, lines 9-26 (*i.e. The Virtual Path discussed in the overview section of the preferred embodiment is the Storage Domain's most atomic element. A Storage Domain contains one or many VPs that are grouped together according to the storage administrator's goals, often dictated by the enterprise organization. A Virtual Path is created when an association is made between a host and a volume. This association grants the host access to that volume according to configured access control parameters and describes the end-to-end path taken by I/O operations from/to the host and the Storage Domain Server. Practically, the association can be realized using any interface showing the virtualized data volume from the storage resource pool under control of a specific Storage Domain Server and the host. Those skilled in the art will recognize that a Graphical User Interface (GUI) will reveal how intuitive this association can be; however the interface can be implemented through any other mean available on the software platform, col. 7, lines 9-26*).

It would have been obvious to one of ordinary skill of the art having the teaching of Nolan, Donovan, Ng, Laurent at the time the invention was made to modify the system of Nolan, Donovan, Ng to include the limitations as taught by

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Laurent. One of ordinary skill in the art would be motivated to make this combination in order to provide a Storage Domain architecture in which a pool of storage devices is controlled by one or a plurality of Storage Domain Servers (SDS) in view of Laurent (Summary), as doing so would give the added benefit of having the Storage Domain Server logically mapped physical storage data on individual storage devices to logical storage data and presented to each host the storage resources allocated to that host by the storage administrator within the Storage Domain as taught by Laurent (Summary).

**As to claims 2, 37**, Nolan, as combined, teaches at least one of said second parties in an application service provider that provides application services to a plurality of third parties over said network (*i.e. the system according to the present invention is included as an intermediate device in a storage area network, between client processors, such as file servers, and storage systems used as storage resources in a storage domain for the clients. Storage transactions are received by the intermediate device, and managed according to the configuration of the storage domain defined by configuration logic in the intermediate device, col. 2, lines 42-56*);

the step of providing access to the database services includes providing database services to an application used by said application provider to provide said application services to said third parties (*i.e. The intermediate device provides a management site within a storage area network that allows for flexible configuration, redundancy, failover, data migration, caching, and support of*

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*multiple protocols. Furthermore, an intermediate device in one embodiment provides emulation of legacy systems, allowing the storage domain to include a legacy storage device for the client without a requirement for reconfiguration of the client, col. 2, lines 42-56).*

**As to claims 3, 38,** Nolan, as combined, teaches:

receiving over said network a request to perform a database management operation from a user associated with particular second party of said plurality of second parties (*i.e. The user launches a host manager using button 1405. This section describes a Java based user interface (UI) for defining hosts (servers) to storage server. The management software opens a window, such as the window 1450 shown in FIG. 19, that presents a table 1451 with entries that contain a host name in column 1452, a port number in column 1453, an initiator ID in column 1454 and a description in column 1455 for each host available for configuration and use. Other fields include a network interface card identifier in column 1456, and a unique host identifier in column 1457. The unique host identifier in a preferred example is the World Wide Number value for a fibre channel host, col. 23, lines 43-56)*

responding to said request by performing said database management operation on one or more databases controlled by said first party without human intervention by said first party (*i.e. Using button 1407 of FIG. 18, the user launches a storage manager routine which displays an image such as that shown in FIG. 22. The image of FIG. 22 includes a window 1500 that includes a*

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*hierarchical tree display construct 1501 for displaying storage elements, col. 24, lines 35-41).*

**As to claims 5, 40,** Nolan, as combined, teaches the step of providing access over a network includes providing access over a public network of computer networks (*i.e. the system according to the present invention is included as an intermediate device in a storage area network, between client processors, such as file servers, and storage systems used as storage resources in a storage domain for the clients. Storage transactions are received by the intermediate device, and managed according to the configuration of the storage domain defined by configuration logic in the intermediate device, col. 2, lines 42-56).*

**As to claims 6, 41,** Nolan, as combined, teaches the step of performing the database management operation involves allocating a different amount of resources to said particular second party than is currently allocated for said particular second party (*i.e. FIG. 19. The dialog box 1465 includes a field 1466 for inserting a host name, and a field 1467 for inserting a unique identifier of the host. Also fields are provided for inserting information about the network interface card 1458, a port number 1459, and an initiator ID 1470. Finally, a description field 1471 is included, col. 23, line 66 to col. 24, line 6).*

**As to claims 8, 43,** Nolan, as combined, teaches the user interfaces contain controls for specifying user profile information, and selection of database

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services (*i.e.* Using button 1407 of FIG. 18, the user launches a storage manager routine which displays an image such as that shown in FIG. 22. The image of FIG. 22 includes a window 1500 that includes a hierarchical tree display construct 1501 for displaying storage elements, col. 24, lines 35-41).

**As to claims 10, 45,** Nolan, as combined, teaches the first party also provides database application over said network; and the method further comprises the step of delivering over the network, to a user associated with one of said second parties, one or more messages which cause generation of user interfaces that allow the users to access a database application service to which said one of said second parties has subscribed (*i.e.* *This section describes a Java based user interface (UI) for defining hosts (servers) to storage server. The management software opens a window, such as the window 1450 shown in FIG. 19, that presents a table 1451 with entries that contain a host name in column 1452, a port number in column 1453, an initiator ID in column 1454 and a description in column 1455 for each host available for configuration and use. Other fields include a network interface card identifier in column 1456, and a unique host identifier in column 1457. The unique host identifier in a preferred example is the World Wide Number value for a fibre channel host, col. 23, lines 43-56).*

**As to claims 11, 46,** Nolan, as combined, teaches the step of delivering over the network, to a user associated with one of said second parties, one or



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more messages which cause generation of user interfaces that allow the user to indicate changes to at least one of profile information, and the selection of services to which said one of said second parties is subscribed (*i.e. FIG. 18 illustrates an image produced by data processing structures for use in configuring a storage server according to the present invention. The image includes a window 1400 having a field 1401 for displaying a logo, a field 1402 for displaying basic information concerning the chassis of the server, and a set of icons 1403-1408, which when a selected, launch management applications. Routines provided for managing hardware and software are launched by button 1403, routines for administering user access are launched by button 1404, and routines to monitor long-running processes in the server are launched by button 1408. According to the present invention, a function for defining hosts attached to the server is launched by button 1405, a function for mapping exported LUNs to managed resources is launched by button 1406, and a function for configuring managed storage is launched by button 1407, col. 23, lines 20-42).*

Donovan teaches the step of delivering over the network, to a user associated with one of said second parties, one or more messages which cause generation of user interfaces that allow the user to indicate changes to at least one of profile information, payment information, and the selection of services to which said one of said second parties is subscribed (*i.e. The reporting function of data storage utilization accounting system 10 provides an output of billing elements each day. The billing elements may be used to debit each account, summarize usage, perform trending analysis, etc. by the billing and general*

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*ledger processes. The reporting function may also provide summaries on a weekly or another predetermined period. Users may also define ad hoc reports for periodic reporting, col. 5, lines 7-14).*

**As to claims 12, 47,** Nolan, as combined, teaches the step of delivering over the network, to a user associated with one of said second parties, one or more messages, which cause generation of user interfaces that allow the user to supply contents for a subscribed database (*i.e. FIG. 18 illustrates an image produced by data processing structures for use in configuring a storage server according to the present invention. The image includes a window 1400 having a field 1401 for displaying a logo, a field 1402 for displaying basic information concerning the chassis of the server, and a set of icons 1403-1408, which when a selected, launch management applications. Routines provided for managing hardware and software are launched by button 1403, routines for administering user access are launched by button 1404, and routines to monitor long-running processes in the server are launched by button 1408. According to the present invention, a function for defining hosts attached to the server is launched by button 1405, a function for mapping exported LUNs to managed resources is launched by button 1406, and a function for configuring managed storage is launched by button 1407, col. 23, lines 20-42).*

**As to claims 13, 48,** Nolan, as combined, teaches the step of delivering over the network, to a user associated with one of said second parties, one or

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more messages which cause generation of user interfaces that allow the user to develop a new database application (*i.e. This section describes a Java based user interface (UI) for defining hosts (servers) to storage server. The management software opens a window, such as the window 1450 shown in FIG. 19, that presents a table 1451 with entries that contain a host name in column 1452, a port number in column 1453, an initiator ID in column 1454 and a description in column 1455 for each host available for configuration and use. Other fields include a network interface card identifier in column 1456, and a unique host identifier in column 1457. The unique host identifier in a preferred example is the World Wide Number value for a fibre channel host, col. 23, lines 43-56).*

**As to claims 14, 49**, Nolan, as combined, teaches the step of delivering over the network, to a user associated with one of said second parties, one or more messages which cause generation of user interfaces that allow the user to integrate an external service (*i.e. FIG. 19. The dialog box 1465 includes a field 1466 for inserting a host name, and a field 1467 for inserting a unique identifier of the host. Also fields are provided for inserting information about the network interface card 1458, a port number 1459, and an initiator ID 1470. Finally, a description field 1471 is included, col. 23, line 66 to col. 24, line 6).*

**As to claims 15, 50**, Nolan, as combined, teaches the step of delivering over the network, to a user associated with one of said second parties, one or

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more messages which cause generation of user interfaces that present a status of a user subscribed resources selected from database resources managed by said first party (*i.e. This section describes a Java based user interface (UI) for defining hosts (servers) to storage server. The management software opens a window, such as the window 1450 shown in FIG. 19, that presents a table 1451 with entries that contain a host name in column 1452, a port number in column 1453, an initiator ID in column 1454 and a description in column 1455 for each host available for configuration and use. Other fields include a network interface card identifier in column 1456, and a unique host identifier in column 1457. The unique host identifier in a preferred example is the World Wide Number value for a fibre channel host, col. 23, lines 43-56).*

**As to claims 17, 52,** Nolan, as combined, teaches the step of the first party updating the one or more database systems by receiving from a community server over the network an update to the one or more database systems, wherein the community server provides the update to plurality of service providers over said network (*i.e. Furthermore, the storage server retrieves such configuration information as needed from the legacy device, and stores the information in local memory so that status and configuration information that the user has been configured to expect in the legacy device is provided using local resources in the server. This saves communication between the server and a legacy device, and allows the server to spoof the action of the legacy device according to the storage channel protocol, so that re-configuration of the user is*

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*either not necessary or much simplified upon addition of the server to the storage network, col. 31, lines 20-47).*

**As to claims 18, 53,** Nolan, as combined, teaches the step of the first party sending to a community server a status of a user subscribed resource, wherein the user subscribed resources is maintained by said first party (*i.e. In the configurations shown in FIGS. 1, 2, and 3, the storage server acts as an intermediate device between users of data, and storage devices in the storage domain which store the data. In this environment, in order to support legacy storage devices, that is, those devices in place before the server is inserted as an intermediate device, the server is provided with resources for emulating the legacy storage device. In this manner, when the server is inserted between the legacy device and the user of the data, the server virtually assumes the logical address of the legacy device according to the storage channel protocol being used between the user and the legacy device, col. 31, lines 20-47).*

**As to claims 19, 54,** Nolan, as combined, teaches presenting to a user associated with said first party a user interface to allow said first party to configure a database device used to provide said database services as one of a dedicated device and a plurality of virtual devices (*i.e. This section describes a Java based user interface (UI) for defining hosts (servers) to storage server. The management software opens a window, such as the window 1450 shown in FIG. 19, that presents a table 1451 with entries that contain a host name in column 1452, a port number in column 1453, an initiator ID in column 1454 and a*

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*description in column 1455 for each host available for configuration and use. Other fields include a network interface card identifier in column 1456, and a unique host identifier in column 1457. The unique host identifier in a preferred example is the World Wide Number value for a fibre channel host, col. 23, lines 43-56).*

**As to claims 20, 55,** Nolan, as combined, teaches presenting to a user associated with said first party a user interface to allow said first party to configure at least one of a dedicated device, and a virtual device of plurality of virtual devices as one of a staging device available only to a database service developer for developing database services, and a production device for making services available to a user who is not the database service developer (*i.e. This section describes a Java based user interface (UI) for defining hosts (servers) to storage server. The management software opens a window, such as the window 1450 shown in FIG. 19, that presents a table 1451 with entries that contain a host name in column 1452, a port number in column 1453, an initiator ID in column 1454 and a description in column 1455 for each host available for configuration and use. Other fields include a network interface card identifier in column 1456, and a unique host identifier in column 1457. The unique host identifier in a preferred example is the World Wide Number value for a fibre channel host, col. 23, lines 43-56).*

**As to claims 21, 56,** Nolan, as combined, teaches presenting a user interface for transferring an application from a staging device to a production device (*i.e. This section describes a Java based user interface (UI) for defining hosts (servers) to storage server. The management software opens a window, such as the window 1450 shown in FIG. 19, that presents a table 1451 with entries that contain a host name in column 1452, a port number in column 1453, an initiator ID in column 1454 and a description in column 1455 for each host available for configuration and use. Other fields include a network interface card identifier in column 1456, and a unique host identifier in column 1457. The unique host identifier in a preferred example is the World Wide Number value for a fibre channel host, col. 23, lines 43-56).*

**As to claims 22, 57,** Nolan, as combined, teaches the step of delivering to one of said second parties over the network one or more messages which cause generation of user interfaces that allow the party to subscribe to said database services is performed as part of a registration process (*i.e. This section describes a Java based user interface (UI) for defining hosts (servers) to storage server. The management software opens a window, such as the window 1450 shown in FIG. 19, that presents a table 1451 with entries that contain a host name in column 1452, a port number in column 1453, an initiator ID in column 1454 and a description in column 1455 for each host available for configuration and use. Other fields include a network interface card identifier in column 1456, and a unique host identifier in column 1457. The unique host identifier in a*

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*preferred example is the World Wide Number value for a fibre channel host, col. 23, lines 43-56).*

**As to claims 25, 60,** Nolan, as combined, teaches:

*presenting to the user a set of selectable sources of content (i.e. FIG. 21 illustrates a dialog box 1475 used for modifying a host. It includes the fields 1476 for changing a host name, 1477 for changing a host unique identifier, 1478 for changing the network interface card identifier, 1479 for changing a port number, and 1484 for changing an initiator ID associated with the host. Also, a field 1481 is included for inserting or changing description text, col. 24, lines 7-13);*

*receiving user input indicating a selected source (i.e. The User Interface consists of menus and a table, or other graphic construct, for displaying the host information. When the user enters the host manager panel, the table is populated with all the existing hosts. The user may select a row in the table. Each row contains information about one host. The user may then choose to modify or delete the host. If modify is chosen, a dialog box will appear allowing the user to change the host name and/or the description. The user will then hit the OK or Cancel button. If OK is hit, the changes will appear in the table and be sent to the server. If delete is chosen, a dialog box will appear with a label indicating the host to be deleted and buttons for OK and Cancel. If OK is hit, the host row will be deleted from the table and the deletion will be made at the server. If Add is chosen, a dialog box will appear that enables the user to add all information about a host. If OK is hit, a new row will be added to the table for that new host*



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*and a add will be done at the server. Clicking the column label will sort the columns, col. 24, lines 16-35) and;*

*launching a source update process to connect to the selected source and update a database with information received from the selected sources (i.e. Using button 1407 of FIG. 18, the user launches a storage manager routine which displays an image such as that shown in FIG. 22. The image of FIG. 22 includes a window 1500 that includes a hierarchical tree display construct 1501 for displaying storage elements, col. 24, lines 35-41).*

**As to claims 27, 62,** Nolan, as combined, teaches:

*in response to user input that specifies that data should be loaded into a subscribed database, determining whether the subscribed database currently exists for said one of said second parties (i.e. FIG. 21 illustrates a dialog box 1475 used for modifying a host. It includes the fields 1476 for changing a host name, 1477 for changing a host unique identifier, 1478 for changing the network interface card identifier, 1479 for changing a port number, and 1484 for changing an initiator ID associated with the host. Also, a field 1481 is included for inserting or changing description text, col. 24, lines 7-13);*

*creating the subscribed database if the subscribed database does not currently exist for said one of said second parties (i.e. routines for administering user, col. 23, lines 20-42; See Figs. 18).*

**As to claims 31, 66,** Donovan, as combined, teaches:

presenting a representation of a selectable external service (*i.e. determine service level, col. 3, lines 20-48*);

receiving user input indicating a selected external service (*i.e. From these data elements 42 and information from support tables 46, data storage utilization accounting system 10 performs a number of tasks that can be grouped into four main categories, col. 3, lines 20-48*);

launching an integration process to provide the external service to the user (*i.e. From the selected data elements 42 and support tables 46, service levels and the corresponding billing element may be determined. The three service levels are distinguished by access retrieval speed. Service level 1 may be defined as providing very rapid and immediate access and transfer rates. Service level 1 is used for critical path application files or highly interactive files. Customer services that may require this level of data storage include automatic teller machines and airline reservation systems, for example, where data are required to be "on-line" and immediately accessible. Service level 2 may be defined as providing maintenance batch functions that update the databases and backup the data. These include non-critical path applications or low access historical files. Service level 2 functions are typically run at night to update and backup data that were changed, added, or deleted during the day. Service level 3 may be defined as providing the level of data storage that is not time critical, for example data archives or backups. At level 3, it is permissible to have respond time measured in days, for example, col. 3, line 59 to col. 4, line 24*).

**As to claims 32, 67,** Donovan, as combined, teaches the selectable external service includes at least one of a payment service, a mobile Internet portal, an enterprise resource planning application, and a customer relationship management application (*i.e. From the selected data elements 42 and support tables 46, service levels and the corresponding billing element may be determined. The three service levels are distinguished by access retrieval speed. Service level 1 may be defined as providing very rapid and immediate access and transfer rates. Service level 1 is used for critical path application files or highly interactive files. Customer services that may require this level of data storage include automatic teller machines and airline reservation systems, for example, where data are required to be "on-line" and immediately accessible. Service level 2 may be defined as providing maintenance batch functions that update the databases and backup the data. These include non-critical path applications or low access historical files. Service level 2 functions are typically run at night to update and backup data that were changed, added, or deleted during the day. Service level 3 may be defined as providing the level of data storage that is not time critical, for example data archives or backups. At level 3, it is permissible to have respond time measured in days, for example, col. 3, line 59 to col. 4, line 24).*

**As to claims 33, 68,** Nolan, as combined, teaches the first party performing at least one of the steps of: setting up database parameters; reporting database usage; backing up the database, upgrading the database, controlling

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database versions, implementing database security; implementing database security within the database (*i.e. This section describes a Java based user interface (UI) for defining hosts (servers) to storage server. The management software opens a window, such as the window 1450 shown in FIG. 19, that presents a table 1451 with entries that contain a host name in column 1452, a port number in column 1453, an initiator ID in column 1454 and a description in column 1455 for each host available for configuration and use. Other fields include a network interface card identifier in column 1456, and a unique host identifier in column 1457. The unique host identifier in a preferred example is the World Wide Number value for a fibre channel host, col. 23, lines 43-56).*

**As per claim 72**, Nolan, as combined, teaches the method of claim 71, wherein one of the plurality of second parties is an Internet Service Provider (ISP) (*i.e. the system according to the present invention is included as an intermediate device in a storage area network, between client processors, such as file servers, and storage systems used as storage resources in a storage domain for the clients. Storage transactions are received by the intermediate device, and managed according to the configuration of the storage domain defined by configuration logic in the intermediate device, col. 2, lines 42-56).*

**As per claim 73**, Nolan, as combined, teaches the method of claim 71, wherein one of the plurality of second parties is an Application Service Provider (ASP) (*i.e. the system according to the present invention is included as an*

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*intermediate device in a storage area network, between client processors, such as file servers, and storage systems used as storage resources in a storage domain for the clients. Storage transactions are received by the intermediate device, and managed according to the configuration of the storage domain defined by configuration logic in the intermediate device, col. 2, lines 42-56).*

**As per claim 76**, Donovan, as combined, teaches the method of Claim 1, where the step of receiving information includes receiving, from a particular second party, information that specifies a maximum transaction rate of the database resources to be used by the particular second party (*i.e. In yet another aspect of the invention, at least three service levels may be defined: the first service level providing a fast data access and retrieval speed, the second service level providing a medium data access and retrieval speed, and the third service level providing a slow data access and retrieval speed, col. 2, lines 9-15).*

**As per claim 77**, Donovan, as combined, teaches the method of Claim 1, where the step of receiving information includes receiving, from a particular second party, information that specifies a frequency of backup of the database resources to be used by the particular second party (*i.e. Service level 2 may be defined as providing maintenance batch functions that update the databases and backup the data. These include non-critical path applications or low access historical files. Service level 2 functions are typically run at night to update and backup data that were changed, added, or deleted during the day. Service level 3*

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*may be defined as providing the level of data storage that is not time critical, for example data archives or backups. At level 3, it is permissible to have respond time measured in days, for example, col. 3, line 49 to col. 4, line 24).*

**As per claim 78**, Donovan, as combined, teaches the method of Claim 1, where the step of receiving information includes receiving, from a particular second party, information that specifies a frequency and format of usage reports of the database resources to be used by the particular second party (*i.e. Data storage utilization accounting system 10 also provides exception processing. A process is provided to identify nonconforming data and formats and to suspend the data record for manual review. The non-conforming records may be written out to a file or files for this purpose. As a result of the manual review, the input data may be modified to conform to predefined formats, or changes may be made in support tables 46 to permit processing of the data. The exception processes ensures data from all sources are collected, read, and processed, col. 4, line 64 to col. 5, line 6).*

**As per claim 80**, Donovan, as combined, teaches the method of Claim 1, where the step of receiving information includes receiving, from a particular second party, information about payment service for the database resource to be used by the particular second party (*i.e. The reporting function of data storage utilization accounting system 10 provides an output of billing elements each day. The billing elements may be used to debit each account, summarize usage,*

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*perform trending analysis, etc. by the billing and general ledger processes. The reporting function may also provide summaries on a weekly or another predetermined period. Users may also define ad hoc reports for periodic reporting, col. 5, lines 7-14).*

**As per claim 81**, Nolan, as combined, teaches the method of Claim 1, where the step of receiving information includes receiving, from a particular second party, information about development of applications for the database resources to be used by the particular second party (*i.e. The user launches a host manager using button 1405. This section describes a Java based user interface (UI) for defining hosts (servers) to storage server. The management software opens a window, such as the window 1450 shown in FIG. 19, that presents a table 1451 with entries that contain a host name in column 1452, a port number in column 1453, an initiator ID in column 1454 and a description in column 1455 for each host available for configuration and use. Other fields include a network interface card identifier in column 1456, and a unique host identifier in column 1457. The unique host identifier in a preferred example is the World Wide Number value for a fibre channel host, col. 23, lines 43-56).*

**As per claim 82**, Ng, as combined, teaches the method of Claim 1, wherein the second parties control the source code of the database applications that the second parties use to send database commands to the database management systems managed by the first parties (*i.e. object-oriented*

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*applications that access persistent objects send requests written in an object-oriented language over network 110 to object-database server 112. Object-server database 112 translates the object-oriented requests to the appropriate database instructions and sends the instructions over network 110 to database server 108 for further database processing, col. 5, lines 20-39).*

**Claims 16, 26, 28-30, 51, 61, 63-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nolan et al. (US Patent No. 6,640,278), in view of Donovan et al. (US Patent No. 6,012,032), and Ng et al. (US Patent No. 6,374,256), and Laurent et al. (US Patent No. 7,222,176), and further in view of Olden et al. (US Patent No. 6,460,141).**

**As to claims 16, 51,** Nolan, Donovan, Ng, Laurent do not seem to teach the step of:

delivering over the network, to a user associated with one of said second parties, one or more messages which cause generation of user interfaces that present the user with a user-selectable representation of a web site building wizard for building a Web page with a database component associated with an interface to a database;

receiving user input indicating the web site building wizard; and

executing said web site building wizard, including presenting a series of screens to the user to prompt user input for building the Web page.

Olden teaches:



delivering over the network, to a user associated with one of said second parties, one or more messages which cause generation of user interfaces that present the user with a user-selectable representation of a web site building wizard for building a Web page with a database component associated with an interface to a database (*i.e. In order to create a Web server, the Create button on the Web Servers page shown in FIG. 20 is clicked. This brings up the Create Web Server dialog window, as shown in FIG. 21. Various information is specified. The unique Web server Name is specified. This is the name that the security and access management system 10 uses when looking for the Web server over the computer network. The Hostname or host IP address of the Web server is also specified. The Port number on which the Web server runs is also specified. The Manufacturer of the Web server software is additionally specified. This is a drop down list. Finally, a short Description of the Web server is preferably specified, col. 19, lines 54-65*);

receiving user input indicating the web site building wizard (*i.e. In order to create a Web server, the Create button on the Web Servers page shown in FIG. 20 is clicked. This brings up the Create Web Server dialog window, as shown in FIG. 21. Various information is specified. The unique Web server Name is specified. This is the name that the security and access management system 10 uses when looking for the Web server over the computer network. The Hostname or host IP address of the Web server is also specified. The Port number on which the Web server runs is also specified. The Manufacturer of the Web server*

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*software is additionally specified. This is a drop down list. Finally, a short Description of the Web server is preferably specified, col. 19, lines 54-65); and*

executing said web site building wizard, including presenting a series of screens to the user to prompt user input for building the Web page (*i.e. In order to create a Web server, the Create button on the Web Servers page shown in FIG. 20 is clicked. This brings up the Create Web Server dialog window, as shown in FIG. 21. Various information is specified. The unique Web server Name is specified. This is the name that the security and access management system 10 uses when looking for the Web server over the computer network. The Hostname or host IP address of the Web server is also specified. The Port number on which the Web server runs is also specified. The Manufacturer of the Web server software is additionally specified. This is a drop down list. Finally, a short Description of the Web server is preferably specified, col. 19, lines 54-65).*

It would have been obvious to one of ordinary skill of the art having the teaching of Nolan, Donovan, Ng, Laurent, and Olden at the time the invention was made to modify the system of Nolan, Donovan, Ng, Laurent to include the limitations as taught by Olden. One of ordinary skill in the art would be motivated to make this combination in order to allow Web applications to be defined to span multiple Web servers in view of Olden (col. 19, lines 43-53), as doing so would give the added benefit of providing a security and access management system for Web-enabled and non-Web-enabled applications and content on a computer network as taught by Olden (Summary).

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**As to claims 26, 61**, Nolan, Donovan, Ng, Laurent do not seem to teach:  
the user input indicating a selected source also indicates a schedule for updating from the selected source;

the source update process connects to the selected source according to the schedule for updating from the selected source.

Olden teaches:

the user input indicating a selected source also indicates a schedule for updating from the selected source (*i.e. Clicking the Set button for either of these properties brings up a date set window, as shown in FIGS. 10 and 11 for the Account Start and Account Expiry dates, respectively. Using these windows, the Account Start Date and Account Expiry Date can be set by selecting the desired date and time and clicking the Select or OK button. In order to automatically enter the current time and date, the Now button and the Select or OK button are clicked in sequence. The times set using these windows refer to the time zone of the host machine, col. 13, lines 60-65*);

the source update process connects to the selected source according to the schedule for updating from the selected source (*i.e. Clicking the Set button for either of these properties brings up a date set window, as shown in FIGS. 10 and 11 for the Account Start and Account Expiry dates, respectively. Using these windows, the Account Start Date and Account Expiry Date can be set by selecting the desired date and time and clicking the Select or OK button. In order to automatically enter the current time and date, the Now button and the Select*

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*or OK button are clicked in sequence. The times set using these windows refer to the time zone of the host machine, col. 13, lines 60-65).*

It would have been obvious to one of ordinary skill of the art having the teaching of Nolan, Donovan, Ng, Laurent, and Olden at the time the invention was made to modify the system of Nolan, Donovan, Ng, Laurent to include the limitations as taught by Olden. One of ordinary skill in the art would be motivated to make this combination in order to allow Web applications to be defined to span multiple Web servers in view of Olden (col. 19, lines 43-53), as doing so would give the added benefit of providing a security and access management system for Web-enabled and non-Web-enabled applications and content on a computer network as taught by Olden (Summary).

**As to claims 28, 63,** Nolan, Donovan, Ng, Laurent do not seem to teach the step of:

- presenting representations of selectable application development kits;
- receiving user input indicating a selected development kit from the user;
- launching a staging process including:
  - configuring consumable database resources on a staging database device, wherein a staging database device can be accessed by the user for developing the new database application and cannot be accessed by users associated with other parties of said plurality of second parties;
  - receiving development input from the user;

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building a new application on the staging database device based on the selected development kit and the development input.

Olden teaches:

presenting representations of selectable application development kits (*i.e.*

*Referring to FIG. 16, in order to create a new application, the Create button is clicked. This brings up the Create Application dialog window, col. 8, lines 27-36;*

*In order to create a Web server, the Create button on the Web Servers page shown in FIG. 20 is clicked. This brings up the Create Web Server dialog window, as shown in FIG. 21, col. 19, lines 54-65);*

receiving user input indicating a selected development kit from the user (*i.e. The administrator can then specify the following application properties. One application property is the Name of the application. Another property is a short Description of the Web application. A final property is a Type for the application, which is generally set to WEB, unless the installation of the security and access management system 10 has special connections to other application systems, col. 8, lines 27-36);*

launching a staging process including:

configuring consumable database resources on a staging database device, wherein a staging database device can be accessed by the user for developing the new database application and cannot be accessed by users associated with other parties of said plurality of second parties (*i.e. The security and access management system 10 allows a security administrator to create an unlimited number of users, each with individual defining properties. The*

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*administrator can further collect users into groups and groups into realms.*

*Additionally, users can be in multiple groups. This feature is useful for administrators trying to mimic organizational structure (for example, user John Doe may be in the promotions group, which is in the marketing realm) or geography (user Jane Doe is in the Paris group, which is in the Europe realm), or any other type of grouping. The user/group/realm concept is also important for setting permissions and entitlements, as will be described later in connection with the description of the Basic Entitlements page, col. 13, lines 23-36);*

*receiving development input from the user (i.e. The administrator can then specify the following application properties. One application property is the Name of the application. Another property is a short Description of the Web application. A final property is a Type for the application, which is generally set to WEB, unless the installation of the security and access management system 10 has special connections to other application systems, col. 8, lines 27-36);*

*building a new application on the staging database device based on the selected development kit and the development input (i.e. Referring to FIG. 16, in order to create a new application, the Create button is clicked. This brings up the Create Application dialog window. The administrator can then specify the following application properties. One application property is the Name of the application. Another property is a short Description of the Web application. A final property is a Type for the application, which is generally set to WEB, unless the installation of the security and access management system 10 has special connections to other application systems, col. 8, lines 27-36).*

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It would have been obvious to one of ordinary skill of the art having the teaching of Nolan, Donovan, Ng, Laurent, and Olden at the time the invention was made to modify the system of Nolan, Donovan, Ng, Laurent to include the limitations as taught by Olden. One of ordinary skill in the art would be motivated to make this combination in order to allow Web applications to be defined to span multiple Web servers in view of Olden (col. 19, lines 43-53), as doing so would give the added benefit of providing a security and access management system for Web-enabled and non-Web-enabled applications and content on a computer network as taught by Olden (Summary).

**As to claims 29, 64,** Olden, as combined, teaches the step of developing the new database application further comprising the steps of:

after receiving user input indicating a selected development kit, determining whether a client process of the selected development kit must be downloaded to a computer of the user over the wide area network (*i.e. The user can be allowed to download appropriate applets based on permissions managed by the security and access management system 10. Application entitlements dictate the level of control that the administrator has over application access. Applications with only the access entitlement are completely available to anyone with that entitlement. Applications with entitlements for each of their various functions allow finer-grained control, col. 8, lines 8-26*);

if it is determined the client process of the selected development kit must be downloaded, downloading the client process to the computer of the user over

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the wide area network before the step of building the new application (*i.e. The user can be allowed to download appropriate applets based on permissions managed by the security and access management system 10. Application entitlements dictate the level of control that the administrator has over application access. Applications with only the access entitlement are completely available to anyone with that entitlement. Applications with entitlements for each of their various functions allow finer-grained control, col. 8, lines 8-26*).

**As to claims 30, 65,** Olden, as combined, teaches the step of developing a new database application further comprising the steps of:

receiving input from the user indicating the new application is ready for operational use (*i.e. Referring to FIG. 16, in order to create a new application, the Create button is clicked. This brings up the Create Application dialog window. The administrator can then specify the following application properties. One application property is the Name of the application. Another property is a short Description of the Web application. A final property is a Type for the application, which is generally set to WEB, unless the installation of the security and access management system 10 has special connections to other application systems, col. 8, lines 27-36*).

in response to receiving input from the user indicating the new application is ready for operational use, launching a production transfer process including sending a request to the first party to transfer the new application to a production device on which the new application may be accessed by users who did not



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develop the new application (*i.e. Referring to FIG. 16, in order to create a new application, the Create button is clicked. This brings up the Create Application dialog window. The administrator can then specify the following application properties. One application property is the Name of the application. Another property is a short Description of the Web application. A final property is a Type for the application, which is generally set to WEB, unless the installation of the security and access management system 10 has special connections to other application systems, col. 8, lines 27-36*).

**Claims 23, 24, 34, 35, 58, 59, 69, 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nolan et al. (US Patent No. 6,640,278), in view of Donovan et al. (US Patent No. 6,012,032), and Ng et al. (US Patent No. 6,374,256), and Laurent et al. (US Patent No. 7,222,176), and further in view of Ciarlante et al. (US Patent No. 6,532,488).**

**As to claims 23, 58,** Nolan, Donovan, Ng, Laurent do not seem to teach:  
receiving a user input value for a particular threshold percentage;  
presenting an alert if an amount of resources consumed by said party exceeds the particular threshold percentage of the maximum amount of subscribed resources

Ciarlante teaches the steps of receiving a user input value for a particular threshold percentage (*i.e. The user may be allowed to access the specific application once, a specific, predetermined number of times, an application-*

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*specific number of times, or an unlimited number of times during that month, col. 12, lines 36-61);*

presenting an alert if an amount of resources consumed by said party exceeds the particular threshold percentage of the maximum amount of subscribed resources (*i.e. a count may be kept of the number of times the user has accessed the instance during the month until that number reaches a threshold, at which point a UIM is deducted. If the EKey contains additional UIMs, step 212, the hosting system continues to allow users to host applications. Otherwise, the ISP must purchase another EKey, step 202, col. 12, line 62 to col. 13, line 9).*

It would have been obvious to one of ordinary skill of the art having the teaching of Nolan, Donovan, Ng and Ciarlante at the time the invention was made to modify the system of Nolan, Donovan, Ng to include the limitations as taught by Ciarlante. One of ordinary skill in the art would be motivated to make this combination in order to register and establish an account to pay for use of the hosted application in view of Ciarlante (col. 3, line 65 to col. 4, line 14), as doing so would give the added benefit of a system to allow service providers the flexibility to offer user initiated groupware applications on a variety of different financial and legal terms as taught by Ciarlante (col. 2, lines 10-14).

**As to claims 24, 59,** Nolan, Donovan, Ng do not seem to teach the maximum amount of subscribed resources includes a maximum amount of at least one of an amount of storage space, a number of users connected to a

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platform in a period of time, an amount of processor time used in a period of time, and a number of transactions completed in a period of time.

Ciarlante teaches the maximum amount of subscribed resources includes a maximum amount of at least one of an amount of storage space, a number of users connected to a platform in a period of time, an amount of processor time used in a period of time, and a number of transactions completed in a period of time (*i.e. The user may be allowed to access the specific application once, a specific, predetermined number of times, an application-specific number of times, or an unlimited number of times during that month, col. 12, lines 36-61*).

It would have been obvious to one of ordinary skill of the art having the teaching of Nolan, Donovan, Ng, Laurent, and Ciarlante at the time the invention was made to modify the system of Nolan, Donovan, Ng, Laurent to include the limitations as taught by Ciarlante. One of ordinary skill in the art would be motivated to make this combination in order to register and establish an account to pay for use of the hosted application in view of Ciarlante (col. 3, line 65 to col. 4, line 14), as doing so would give the added benefit of allowing service providers the flexibility to offer user initiated groupware applications on a variety of different financial and legal terms as taught by Ciarlante (col. 2, lines 10-14).

**As to claims 34, 69**, Nolan, Donovan, Ng, Laurent do not seem to teach the step of:

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if a costing database does not already exist, then automatically creating the costing database of database resource usage by user, and initiating a costing model with price per unit of consumable resource per service;

inserting data into the costing database based on actual use of database resources by the user;

executing the costing model to compute a cost-per-user based on the data in the costing database and the price per unit of consumable resource per service;

billing the user for the cost computed by the costing model.

Ciarlante teaches:

if a costing database does not already exist, then automatically creating the costing database of database resource usage by user, and initiating a costing model with price per unit of consumable resource per service (*i.e. At the start of every month, the hosting system vendor generates electronic keys, step 200, which are specially encoded and encrypted files that are deliverable to ISPs by download over the Internet. The electronic keys or EKeys are supplied in prepackaged quantities of User Instance Months or UIMscol. 12, lines 36-61*);

inserting data into the costing database based on actual use of database resources by the user (*i.e. At the start of every month, the hosting system vendor generates electronic keys, step 200, which are specially encoded and encrypted files that are deliverable to ISPs by download over the Internet. The electronic keys or EKeys are supplied in prepackaged quantities of User Instance Months or UIMscol. 12, lines 36-61*);

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executing the costing model to compute a cost-per-user based on the data in the costing database and the price per unit of consumable resource per service (*i.e. The electronic keys or EKeys are supplied in prepackaged quantities of User Instance Months or UIMs, with volume discounts being offered. For example, a starter Ekey may contain 375 UIMs and be priced at \$500, a small Ekey may contain 3,000 UIMs and cost \$3,000, and a large EKey may contain 30,000 UIMs and cost \$25,000. Each UIM allows one user to host one application instance during that month, col. 12, lines 36-61*);

billing the user for the cost computed by the costing model (*i.e. During use of the application instance, the host system tracks use of the application for billing and accounting purposes, col. 10, lines 25-26*).

It would have been obvious to one of ordinary skill of the art having the teaching of Nolan, Donovan, Ng, Laurent, and Ciarlante at the time the invention was made to modify the system of Nolan, Donovan, Ng, Laurent to include the limitations as taught by Ciarlante. One of ordinary skill in the art would be motivated to make this combination in order to register and establish an account to pay for use of the hosted application in view of Ciarlante (col. 3, line 65 to col. 4, line 14), as doing so would give the added benefit of allowing service providers the flexibility to offer user initiated groupware applications on a variety of different financial and legal terms as taught by Ciarlante (col. 2, lines 10-14).

**As to claims 35, 70**, Ciarlante teaches the costing model supports (*col. 12, lines 36-61*):

fixed price per unit of usage (*i.e. rate for ... megabytes transferred/month, col. 12, lines 36-61*);

variable price per unit usage as a function of usage (*i.e. a rate for disk space usage/month, col. 12, lines 36-61*);

flat price up to maximum value of usage (*i.e. flat rate, col. 12, lines 36-61*);

different prices for different users (*i.e. a rate per user/per month, col. 12, lines 36-61*);

different prices for different services (*i.e. rate for ... page hits/month, col. 12, lines 36-61*);

different prices for increments of usage above a maximum subscribed usage (*i.e. ISVs also pay the hosting system platform vendor in accordance with a formula based on use of the hosting system, col. 12, lines 36-61*).

**Claim 74 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nolan et al. (US Patent No. 6,640,278), in view of Donovan et al. (US Patent No. 6,012,032), and Ng et al. (US Patent No. 6,374,256), and Laurent et al. (US Patent No. 7,222,176), and further in view of Gioielli et al. (US Patent No. 5,485,610).**

**As per claim 74**, Nolan, Donovan, Ng, Laurent do not teach the method of claim 1, wherein the step of receiving information includes receiving, from a particular second party, information that specifies a maximum amount of storage space of the database resources to be used by the particular second party.

Gioielli teaches this limitation (*i.e. the maximum amount of space available on any one of the devices, the maximum amount of memory available to applications using the database, Gioielli, col. 14, lines 5-27*).

It would have been obvious to one of ordinary skill of the art having the teaching of Nolan, Donovan, Ng, Laurent, and Gioielli at the time the invention was made to modify the system of Nolan, Donovan, Ng, Laurent to include the limitations as taught by Gioielli. One of ordinary skill in the art would be motivated to make this combination in order to allow users to improve the performance of the database and any applications that rely on it in view of Gioielli (col. 2, lines 38-67), as doing so would give the added benefit of providing a technique to prevent excessive disk head movement that slows response time, as taught by Gioielli (col. 2, lines 38-67).

**Claim 75 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nolan et al. (US Patent No. 6,640,278), in view of Donovan et al. (US Patent No. 6,012,032), and Ng et al. (US Patent No. 6,374,256), and Laurent et al. (US Patent No. 7,222,176), and further in view of Blumenau et al. (US Patent 6,839,747).**

**As per claim 75**, Nolan, Donovan, Ng, Laurent do not seem teach the method of Claim 1, wherein the step of receiving information includes receiving, from a particular second party, information that specifies a maximum amount of users of the database resources to be used by the particular second party.

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Blumenau teaches this limitation (*i.e. The bitmap includes a number of bits corresponding to the maximum number of devices (HBAs) that can access each port. In FIG. 5, these bits are indicated as D1, D2 . . . Dn, where n is the maximum number of devices that may be coupled to any port, col. 10, lines 45-61*).

It would have been obvious to one of ordinary skill of the art having the teaching of Nolan, Donovan, Ng, Laurent, and Blumenau at the time the invention was made to modify the system of Nolan, Donovan, Ng, Laurent to include the limitations as taught by Blumenau. One of ordinary skill in the art would be motivated to make this combination in order to increase the response time performance of the storage system in view of Blumenau (col. 10, lines 45-61), as doing so would give the added benefit of providing a data management method for managing access to a storage system by at least two devices coupled to the storage system includes a step of selectively servicing, at the storage system, a request from one of the at least two devices for access to a portion of data stored at the storage system responsive to configuration data indicating that the one of at least two devices is authorized to access the portion of data as taught by Blumenau (col. 1, lines 55-63).

**Claim 79 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nolan et al. (US Patent No. 6,640,278), in view of Donovan et al. (US Patent No. 6,012,032), and Ng et al. (US Patent No. 6,374,256), and Laurent**



**et al. (US Patent No. 7,222,176), and further in view of Kloba et al. (US Patent No. 6,553,412).**

**As per claim 79**, Nolan, Donovan, Ng, Laurent do not seem to teach the method of Claim 1, where the step of receiving information includes receiving, from a particular second party, information about Internet access for mobile devices to be used by the particular second party.

Kloba teaches this limitation (*i.e. the invention includes systems, methods, computer program products, and combinations and sub-combinations thereof for enabling web content (as well as other objects) to be loaded on mobile devices (as well as other types of devices), and for users of mobile devices to operate with such web content on their mobile devices in an interactive manner while in an off-line mode, Summary*).

It would have been obvious to one of ordinary skill of the art having the teaching of Nolan, Donovan, Ng, Laurent, and Kloba at the time the invention was made to modify the system of Nolan, Donovan, Ng, Laurent to include the limitations as taught by Kloba. One of ordinary skill in the art would be motivated to make this combination in order to enable web content (as well as other objects) to be loaded on mobile devices in view of Kloba (Summary), as doing so would give the added benefit of using interactive applications while on-line and off-line on mobile devices as taught by Kloba (col. 1, lines 40-44).

### ***Response to Arguments***

Applicant's arguments filed 03/20/09 have been fully considered but they are not persuasive.

In response to Applicant's arguments that "the claims are directed to a system that (1) allows subscribers to control their own database applications, but still (2) offload the burden of managing the database system that those database application use", the Examiner respectfully notes that this claim features is taught by Laurent (new ground of rejection) as in col. 6, lines 27-34 (*i.e. The Storage Domain Server role is to directly control physical devices and provide the means to map the controlled physical storage to a virtualized logical storage (also called a volume) in order to meet individual hosts needs and privileges. The resulting logical volume is presented to individual hosts or a multitude of hosts, thus relieving hosts from the burden of managing the actual physical storage device, col. 6, lines 27-34*).

### **Conclusion**

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory

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period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Miranda Le whose telephone number is (571) 272-4112. The examiner can normally be reached on Monday through Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James K. Trujillo, can be reached at (571) 272-3677. The fax number to this Art Unit is (571)-273-8300.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (571) 272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Miranda Le/  
Primary Examiner, Art Unit 2159